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A third biennium of epidemiological data on suicide in the U.S. Army was compiled with the same method as was used previously. The annual crude suicide rate per 100,000 soldiers-at-risk for 1981-82 was found to be 11.2, a drop of 0.4 points from where it stood in 1979-80.

Sex-specific, race-specific, age-specific, grade-specific and marital status-specific rates were studied and can be compared with the same indices in the previous three biennia. Demographic data and information on circumstances surrounding the suicidal act were also made available for comparison with

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previous data.

Analysis of the suicided person's psychosocial situation (as reflected in the kinds of personal problems recorded in the reports and investigations of the incident and as reflected in assessments made of the victim's pre-suicidal "motivational state") showed remarkable consistency in the four time-periods studied and points unflinchingly to a love-object dyadic relationship at total collapse.



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# MILITARY MEDICINE

## ORIGINAL ARTICLES

### Suicide in United States Army Personnel, 1981-1982

Joseph M. Rothberg, Ph.D.\*  
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COL Franklin Del Jones, MC, USA†

A third biennium of epidemiological data on suicide in the US Army was compiled with the same method as was used previously.<sup>1-3</sup> The annual crude suicide rate per 100,000 soldiers-at-risk for 1981-82 was found to be 11.2, a drop of 0.4 points from where it stood in 1979-80.

Sex-specific, race-specific, age-specific, grade-specific, and marital status-specific rates were studied, and can be compared with the same indices in the previous three biennia. Demographic data and information on circumstances surrounding the suicidal act were also made available for comparison with previous data.

Analysis of the suicidal person's psychosocial situation (as reflected in the kinds of personal problems recorded in the reports and investigations of the incident and as reflected in assessment made of the victim's pre-suicidal "motivational state") showed remarkable consistency in the four time-periods studied, and points unflinchingly to a love-object dyadic relationship at total collapse.

MILITARY MEDICINE, 149, 10:537, 1984

This is the fourth in a series of biennial reports on the epidemiology of suicide in active duty Army personnel.<sup>1-3</sup>

#### Method

As in the three previous studies, the line of duty (LOD) investigation file on each completed suicide was used as the primary data source. The LOD file was routinely received by the Psychiatry and Neurology Consultant in the Office of the Surgeon General for an opinion on the suicided soldier's mental competency. While the file was under review, selected information from it was extracted and recorded for later coding and data processing.

#### Results

From 1 January 1981 through 31 December

1982, a total of 173† soldiers killed themselves intentionally. Using mid-year strength data provided by the Defense Manpower Data Center, the Army annual crude suicide rate for the two-year period was found to be 11.2 cases per 100,000 soldiers-at-risk. In 1981, the suicide incidence was 84 and in 1982 it was 89. These counts produced annual crude rates of 10.9 and 11.4, respectively.

The 173 suicides are broken out by sex and by enlisted versus officer status in Table I, and the corresponding rates are also given. The male to female rate ratio is 2.1 to 1. The enlisted to officer ratio is 1.6 to 1. The reader is reminded that the smaller number of female suicides results in unstable rates. The standard deviation of the rate can be estimated from the rate calculated, using the square root of the number of cases.

Sex by race breakout of the suicide frequencies is presented in Table II. Rate ratios are as follows: white male to black male, 2.0; white female to black female, 4.8; white male to non-white male, 2.3; white female to non-white female, 5.9.

Age and grade distributions are summarized in

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† Three late reports of suicides, one male enlisted and two female enlisted, were received by the Office of the Surgeon General after completion of this report. ©1984, Military Medicine

TABLE I

SUICIDE INCIDENCE AND RATE PER 100,000 IN ACTIVE DUTY ARMY PERSONNEL FOR CALENDAR YEARS 1981 AND 1982

	Enlisted		Officer		Total	
	Incidence	Rate	Incidence	Rate	Incidence	Rate
Male	151	12.4	14	7.4	165	11.8
Female	7	5.5	1	5.9	8	5.5
Total	158	11.8	15	7.3	173	11.2

TABLE II

SUICIDE INCIDENCE AND RATE PER 100,000 BY SEX AND RACE IN ACTIVE DUTY ARMY PERSONNEL FOR CALENDAR YEARS 1981 AND 1982

	White		Black		Other		Total	
	Incidence	Rate	Incidence	Rate	Incidence	Rate	Incidence	Rate
Male	130	14.6	29	7.2	4	3.5	163	11.6
Female	7	8.8	1	1.8	0	—	8	5.5
Total	137	14.2	30	6.6	4	3.2	171*	11.0

\* Less than 173 because of missing data

TABLE III

SUMMARIES OF AGE AND GRADE DISTRIBUTIONS BY ENLISTED/OFFICER STATUS AND BY SEX FOR THE 173 ARMY SUICIDES, 1981-82

	Enlisted		Officer		
	Male	Female	Male	Female	
Age					
N	151	7	14	1	
Mean	25	21	34	34	
Mdn	23	19	35	34	
Mode	19	18	23	34	
Range	17-43	18-26	23-44	34-34	
Grade	N	N	Grade	N	N
E1	10	1	WO	4	0
E2	19	4	2LT	1	—
E3	22	0	1LT	1	—
E4	47	0	CPT	4	1
E5	26	2	MAJ	3	—
E6	15	0	LTC	1	—
E7	12	0			

Table III. The data are broken out by enlisted versus officer status and by sex. The average age for male enlisted suicides was 25, and for female enlisted suicides was 21. Most enlisted suicides for males occurred in grade E4 and for females in grade E2.

Age-specific rates for the 1981-1982 Army suicide population were calculated for either sex and are plotted by five-year age groups in Fig. 1, along with the age-specific rates for the general US population for 1979, obtained from the Mortality Branch of the National Center for Health Statistics. (US rates by five-year age groups for 1981 or for 1982 were not available at the time of this writing.) The eight women suicides were distributed into the

five year age-groupings as follows: 4, 2, 1, 1, 0, 0. An examination of the yearly age-specific rates revealed that the highest Army rates (for both sexes combined, and not counting age years in which only one suicide occurred) were for ages 41 (rate of 21.9), 24 (17.1), 18 (16.7), 27 (14.6), and 19 (14.5).

Grade-specific rates by sex and for the total are presented in Table IV. These rates were calculated by using as denominators the 1981 and 1982 mid-year grade strengths compiled by the Defense Manpower Data Center. The grade with the highest suicide rate for men and women was E2.

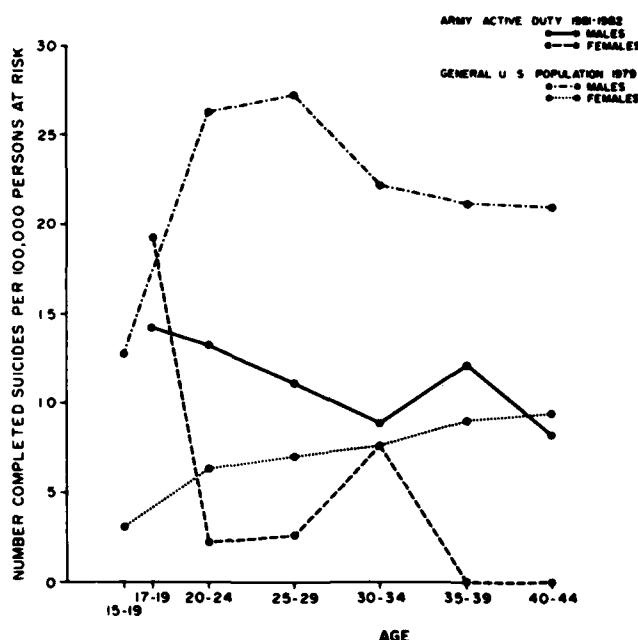


Fig. 1. Age-specific suicide rates by five-year age groups for Army active duty personnel, 1981 and 1982, and for general US population, 1979.

TABLE IV

GRADE-SPECIFIC SUICIDE RATES FOR ARMY ACTIVE DUTY PERSONNEL 1981-1982

Grade	Male		Female		Total	
	N	Rate	N	Rate	N	Rate
E1	10	9.8	1	7.6	11	9.6
E2	19	18.4	4	26.8	23	19.5
E3	22	11.2	0	—	22	9.9
E4	47	14.6	0	—	47	12.9
E5	26	12.0	2	8.4	28	11.6
E6	15	10.0	0	—	15	9.7
E7	12	13.1	0	—	12	12.9
E8	0	—	0	—	0	—
E9	0	—	0	—	0	—
Warrant Officers	3	10.8	0	—	3	10.7
Commissioned Officers	11	6.9	1	6.0	12	6.8
All enlisted	151	13.5	7	5.5	158	12.7
All officer	14	7.4	1	5.9	15	7.3

Table V presents marital status distribution. Approximately one-third of the suicides were currently married. This proportion is similar to that obtained previously.<sup>1-3</sup> The calculation of the marital status-specific rates had not been reported previously.

Time and place circumstances were as shown in Fig. 2 and 3, and in Table VI. Suicide was spread quite evenly throughout the days of the week, but exhibited a saw-tooth pattern across the months of the year. Neither the spring and fall peaks nor the Monday peak found by MacMahon<sup>4</sup> in the US Vital Statistics are found in our data. There is little apparent consistency in the cyclical properties of suicide when the data from all four biennia are examined.<sup>1-3</sup>

The home (including parental home, family quarters, apartment, and barracks) was the site of suicide for 48 per cent of the cases, a finding remarkably similar to the 57 per cent in 1979-1980, to the 55 per cent in 1977-78, and to the 52 per cent in 1975-76. In terms of distribution of the suicide cases via geographic location, nine continental United States (CONUS) stations reported five or more instances of completed suicide in the two-year period: Forts Hood 21, Bragg 12, Ord 11, Campbell 7, Knox 7, Stewart 5, Carson 5, Lewis 10, and Sill 7. CONUS reported a total of 139 suicide deaths (rate of 15.1), Alaska, two (rate of 12.5), Hawaii,

TABLE V

MARITAL STATUS-SPECIFIC RATES FOR ARMY ACTIVE DUTY PERSONNEL 1981-1982

	N	Rate
Single	76	11.6
Married	64	9.8
Div'd or separ'd	30	68.1
Widowed	0	0.0
Total	170*	12.5

\* Less than 173 because of missing data

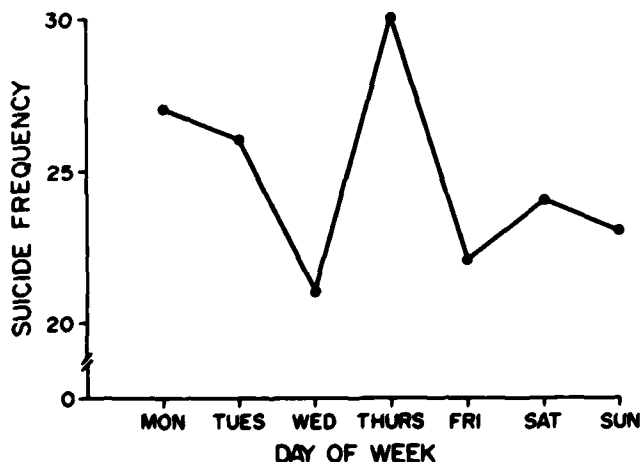


Fig. 2. Frequency of suicide by day of week, 1981-1982.

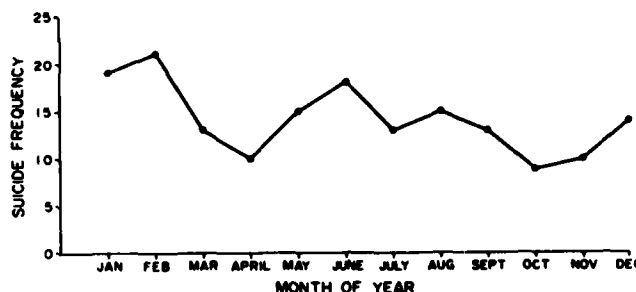


Fig. 3. Frequency of suicide by month of year, 1981-1982.

TABLE VI

PLACE WHERE SUICIDE ACT OCCURRED  
ARMY SUICIDES 1981-1982

Place	N	Per Cent
Home/quarters	58	34.1
Barracks	25	14.7
Friend's home*	8	4.7
Motel/hotel	2	1.2
Jail/hospital	9	5.3
Place of duty	7	4.1
On post, other	17	10.0
Off post, other	44	25.9
Total	173	100.0

\* Including relative's home (not parent)

TABLE VII

METHOD USED TO COMPLETE SUICIDE  
ARMY SUICIDES 1981-1982

Method	Men		Women	
	N	Per Cent	N	Per Cent
Firearm	97	58.8	2	25.0
Hanging, strang'la'n	28	17.0	1	12.5
Overdose/poison	6	3.6	1	12.5
Gas (CO, other)	17	10.3	0	0.0
Jump	8	4.8	3	37.5
Drowning	3	1.8	0	0.0
Other	6	3.6	1	12.5
Total	165	99.9	8	100.0

one (rate of 2.9), Europe, 27 (rate of 6.1), and Korea, four (rate of 7.1).

In terms of time clusters, at two posts (Hood and Lewis) there were instances (one at Lewis and two at Hood) wherein three cases occurred within a 30-day period. In Europe, there were also two instances of three cases within a 30-day period.

The methods that were used to accomplish the suicides are tallied in Table VII. Use of a firearm was again the most common method employed by males and jumping from a height was the most common method employed by females.

It was observed that 28 per cent of the 173 victims left a suicide note, 26 per cent of them spoke of or hinted about suicide prior to the act, and six per cent had histories of suicide attempts. Nineteen

per cent of the cases had a history of some kind of psychiatric contact—mental health clinic visit, hospitalization, or para-psychiatric counseling. We counted 24 per cent of the 173 cases who had been using alcohol at the time of the final act, and three per cent who had been using an illicit drug just before death. These percentages on communication, psychiatric history, and alcohol/drug usage are believed to be conservative representations, since observational data on the presence or absence of these items were not always included in the files reviewed.

Table VIII is a list of stressful problems, with a tally of the number of cases in whom the specific problem was noted to have existed prior to suicide. The percentages are based upon the 126 persons in whom one or more of the problems had been detected and recorded. In 47 of the victims, no motivational explanations or problem definitions could be found in the files searched.

The foremost problem is the one labeled "difficulties with love-object." When the nature of the relationship problem in the victim love-object dyad is explored (Table IX), divorce or other dissolution of the relationship is the most frequent manifestation. In 30 per cent of the cases in which a love-object problem was noted, reference to a quarrel or altercation just prior to the suicide could be found in the case material.

The taxonomy of suicidal motivation developed previously<sup>1-3</sup> was used again to categorize cases whenever sufficient information was available. Forty-two cases were assigned one of five classifications, with the following results: (1) Exposed, caught, humiliated, cornered—19 per cent; (2) Guilty, remorseful, regretful—21 per cent; (3) Rejected deserted, cut off—43 per cent; (4) Inadequacy, inability, loss of functioning, dislike of

TABLE VIII

NUMBER AND PERCENTAGE OF SUICIDED PERSONS IN WHOM CERTAIN SPECIFIC STRESSFUL PROBLEMS WERE NOTED TO HAVE EXISTED PRIOR TO SUICIDE  
ARMY SUICIDES 1981-1982

Existent Problem	N	Per Cent
Difficulties with love object	87	69.0
Difficulties with job/work/ Army	52	41.3
AWOL/desertion at time of suicide	13	10.3
In trouble with law (other than AWOL)	13	10.3
Financial problems	22	17.5
Suffering from a psychosis	1	0.8
Medical/health problems (other than psychiatric)	10	7.9
Death of a loved one	5	4.0
Alleged sexual deviation	6	4.8

Note: Percentages based on an N of 126; i.e., the number of persons with one or more detected stressful problems

TABLE IX

NUMBER AND PERCENTAGE OF LOVE-OBJECT-PROBLEM-SUICIDED PERSONS IN WHOM THE LOVE-OBJECT-PROBLEM WAS MANIFESTED IN CERTAIN SPECIFIC WAYS  
ARMY SUICIDES 1981-1982

Manifestation of Love-Object-Problem	N	Per Cent
Recent or pending divorce, separation, or breakup	60	69.0
Marital problems/"can't get along"	29	33.3
Altercation with love object just before suicide	26	29.9
Infidelity an issue	14	16.1
History of violence in the relationship	12	13.8
Murdered love object at time of suicide	5	5.7
Attempted to murder love object but failed	6	6.9

Note: Percentages based on N of 87; i.e., number of persons with a detected love-object-problem

self—14 per cent; and (5) Intractable pain, hopeless medical condition—one per cent.

### Discussion

The annual suicide rate per 100,000 soldiers-at-risk fell four-tenths of a point from 1979-80 to 1981-82. This drop represents a slowing in the continued downward trend that has been observed since our studies began. In 1975-76, the annual crude suicide rate was 16.4; in 1977-78 it was 14.8; in 1979-80 it was 11.6, and in 1981-82 it was 11.4. We lack a completely satisfactory explanation for this observed trend but, in this connection, we would point out the demographic shift in active duty Army that has occurred during the period we have been studying soldier suicide.

In 1975-76 the ratio of white soldiers to black soldiers in the active US Army was 3.7; in 1981-82, it was 2.1. This constitutes a drop of 43.2 per cent in the white:black soldier population ratio in eight years of time. And we know that the suicide rate for black soldiers is considerably lower than it is for white soldiers. The relative risk for white male suicides over black male suicides is 2.0, and the relative risk for white female soldiers over black female soldiers ranged from 4.8 to 6.3 in the four biennia studied.

The suicide rate per 100,000 women in the Army dropped from 15.2 in 1979 to 5.5, a figure approximately six points less than the male rate, in 1981-82. This striking reduction of two-thirds over the six years brings the suicide rate to a value comparable with equivalent civilian females. We wonder whether efforts to improve the status of women in

the Army played a role in this reduction but we lack data to test this hypothesis.

There was only one female officer suicide and one black female suicide in 1981-82. The mean age of enlisted suicides was not dissimilar to what it had been in the three previous biennia for males, and dropped to 20.9 from 23.7 in 1979-80 for females. The mean age of male officer suicides, 34.1, was similar to what was found in 1979-80, 35.2. The relative risk of enlisted suicides to officer suicides returned to 1.6 from previous values of 3.1, 1.7, and 1.8.

Age-specific rates for the Army male suicides were lower at all age levels studied than the comparable rates for the general US male population—a finding that has now established itself four times. However, Army suicide rates for women has only just been reduced to values not higher than rates at comparable ages in the general US female population. This finding of a shift with time provides further suggestion that Army female suicides may be unique from civilian female suicides, even when age is held constant.

Grade-specific rates for Army enlisted suicides show elevated risk for grade E2. This grade is typically attained after three months in the service and held for another three months. The grade of E2 falls in the period of advanced training between the completion of basic training (the first two months in the service) and the start of the soldier's duty assignment. This period is a time of transition, with the anticipation of pass/fail training assessments and imminent relocation, with attendant separations and disrupted personal relationships. The hypothesis that this psychosocial stress of transition is the "cause" of the individual suicides follows, but the LOD file does not contain the information to allow a test of the hypothesis.

The data having to do with note-leaving, communicating intent, history of attempts and psychiatric contact, and using alcohol or drugs at the time of suicide, were similar to the percentages obtained in the three previous biennia. The place where the act occurred was also similar. Time indicators—day of the week and month of the year—show little consistency from one two-year period to the next. The marital status-specific rates show that divorced or separated soldiers have a six times higher suicide rate compared with single soldiers and a relative risk of seven compared with married soldiers. As was reported previously<sup>3</sup>, our data again demonstrate that the impending Army suicide is most likely to be in the throes of a relationship problem with his or her spouse or lover, producing a compelling feeling of rejection or isolation from the other party in the dyad.

### Acknowledgment

This paper is dedicated to the memory of the late Dr. William Datel.

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